

**REMARKS**

In response to the Notice of Non-Compliant amendment regarding the listing of the Claims, new Claim 70 has been corrected to delete the typographical error of unnecessary strikethroughs and underlining. Therefore a revised complete list of all claims and their present status is attached.

As noted in the prior Amendment dated August 13, 2004, with respect to the outstanding Office Action, in the Office Action, the Examiner noted that claims 33-36 and 38-69 are pending in the application; that claims 33-36 and 38-69 are rejected; and that claim 37 is canceled without prejudice or disclaimer. By this response, claims 36, 38-53 and 56, 58, 62, 63, and 66-68 continue unamended; claims 33, 34, 35, 54, 55, 57, 59, 60, 61, 64, 65, and 69 are amended. In view of the following discussion, the Applicants submit that none of the claims now pending in the application is indefinite, anticipated, or obvious under the respective provisions of 35 U.S.C. §§112, 102, or 103. Thus, the Applicants believe that all of these claims are now in allowable form.

**REJECTION OF CLAIMS UNDER 35 U.S.C. §112**

The Examiner rejected claims 64 and 65 under 35 U.S.C. §112, first paragraph; and claims 57 and 59-61 under 35 U.S.C. §112, second paragraph. The Applicants traverse the rejections.

The Applicants have amended claims 57, 59-61, 64 and 65 as indicated above. The amendments to the claims add no new matter and are supported in the specification as originally filed. For example, the Applicants' Fig. 4 clearly depicts a "post having a tapered series of truncated sections separated by serrations," as recited in claims 64 and 65.

As such, the Applicants' request reconsideration and withdrawal of the 35 U.S.C. §112 rejection of claims 57, 59-61, 64 and 65.

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**REJECTION OF CLAIMS UNDER 35 U.S.C. §102**

The Examiner rejected claims 33, 34, 38, 41, 53, and 55 under 35 U.S.C. §102(e) as being anticipated by Reynaud et al. (U.S. Patent No. 5,328,372, issued July 12, 1994) ("Reynaud"). The Applicants traverse the rejection.

Reynaud discloses the use of a composite material comprising carbon fibers embedded in an epoxy resin or polyester resin. Thus, the composite material comprises the carbon fibers and the resin. Reynaud further discloses that the carbon fibers are "continuous ... equally tensioned and with unidirectional longitudinal arrangement in the axis of the peg." (Reynaud at col. 2, line 59 - col. 3, line 2). In other words, Reynaud requires that all of the carbon fibers are axially aligned. In addition, Reynaud discloses that "100% of the carbon fibers are continuous from end of the peg to the other end of the peg." (Reynaud at col. 2, lines 13-19).

[T]he equally tensioned fibers occupy 64% of the total volume [of the fiber and resin composite] or the total weight as the density of these fibers is substantially equal to that of the epoxy resin. This very high rate of fibers gives the peg exceptionally high values in shear ... which avoid[s] any fracture of the peg. (See col. 3, lines 3-12).

In contrast, the Applicants disclose in Claim 33 a post which comprises glass fibers (e.g., fiberglass fibers as in dependent Claim 34). The Applicants' posts comprise specific types of glass fibers that are not disclosed by Reynaud.

As noted standard composite material literature, composite materials made of carbon/graphite rods in a resin are generally stiffer and less flexible than composite materials made of fiberglass fibers in a resin. For example,

according to the website of Aerospace Composite Products ([acp-composites.com](http://acp-composites.com)) solid carbon rods

*"are extremely stiff and lightweight and have a very low coefficient of expansion."*

Furthermore, graphite composites used in making fishing rods can create weak points along the rod. For example, in the website of [stcroixrods.com](http://stcroixrods.com), a special integrated poly curve <sup>™</sup> (IPC) rod eliminates inherent weak points of fishing rods made of graphite and resins when rolling the graphite. However the IPC rods are considered stronger because:

*"stress is distributed along the entire blank. IPC tapers result in superior graphite fiber alignment along the length of the blank. This ensures better longitudinal strength because alignment is never distorted at transition points. It results in more uniform strength, stiffness and sensitivity along the entire blank shaft for vibration transmission and enhanced feel".*

Therefore, all other factors being equal, graphite composite materials have what would be a disadvantage in dental posts subject to longitudinal stress from biting, namely that stress is distributed along its entire length and that it has a stiffness, which is undesirable when flexibility is desired, as in a composite material endodontic post.

In contrast, according to the website of [chemposite.com](http://chemposite.com)

*"(t)he flexibility of fiberglass is the perfect material for custom shapes and forms."*

A comparison of fiberglass composite material and graphite composite material made of graphite and epoxy in the website of [performancecomposites.com](http://performancecomposites.com) reveals that graphite composite material is five times stiffer than fiberglass composite material. For example, a test of composite materials made of graphite and epoxy has a stiffness of  $8 \times 10^6$  psi, while a test of fiberglass fibers

and resin reveals that the fiberglass composite material has a stiffness of  $1.2 \times 10^6$  psi. This five fold disparity occurs even though the densities of fiberglass composite material (.055 lb/in<sup>3</sup>) and graphite composite material (.065 lb/in<sup>3</sup>) are relatively similar.

Moreover, a further comparison of E-glass/epoxy unidirectional fiberglass prepreg with AS/3501 carbon/epoxy unidirectional prepreg reveals wide disparities of flexibility vs. stiffness of these two materials in Berenberg; Barry, About Composites/Plastics textbook quoted in the website of composite.about.com. E-Glass/epoxy unidirectional prepreg has a lower longitudinal modulus of elasticity of 5.7 (indicating flexibility) vs. AS/3501 carbon/epoxy unidirectional prepreg having a modulus of elasticity of 20 (indicating stiffness).

Therefore, although stiffer carbon rod manufactured endodontic posts are disclosed in Reynaud, fiberglass based manufactured endodontic posts were not disclosed or suggested by Reynaud.

Applicants' independent claims 33 and 55 each recite a post utilizing glass fibers. The Applicants maintain that this recited difference between the Applicants' invention and the invention disclosed by Reynaud is sufficient to overcome the rejection. In addition, claims 38, 41, 53 (which depends either directly or indirectly from claim 33) also is not anticipated by Reynaud at least for their dependency upon claim 33. As such, the Applicants submit that the claims are not anticipated by Reynaud. Therefore, the Applicants request reconsideration and withdrawal of the anticipation rejection of the claims.

**REJECTION OF THE CLAIM UNDER 35 U.S.C. §103**

The Examiner rejected under 35 U.S.C. §103(a) claims 35, 36, 42-50, 54, and 56-69 as being unpatentable over Reynaud; claim 39 as being unpatentable over Reynaud in view of Al Kasem (U.S. Patent No. 5,326,264, issued July 5,

1994); claim 51 as being unpatentable over Reynaud in view of Kennard (U.S. Patent No. 3,903,603, issued September 9, 1975); and claim 52 as being unpatentable over Reynaud in view of Weissman (U.S. Patent No. 5,326,263, issued July 5, 1994). The Applicants traverse the rejections.

**A. Claims 35, 36, 40, 42-50, 54, and 59-69**

The Examiner rejected under 35 U.S.C. §103(a) claims 35, 36, 42-50, 54, and 56-69 as being unpatentable over Reynaud. The arguments presented against Reynaud with respect to the anticipation rejection are also applicable with respect to the instant rejection. As such, the Applicants incorporate those arguments herein.

Reynaud addresses the problem of matching the properties of a tooth. One of the problems addressed by the Applicants is also to match the properties of a tooth (to prevent cracking). The Applicants submit that Applicants solve this problem in such a way that teaches away from Reynaud. Specifically, the Applicants utilize fibers (i.e., fiberglass) that are different than the carbon fibers disclosed by Reynaud. The Applicants submit that the Examiner has looked at the problems solved and used impermissible hindsight to conclude that the Applicants invention is obvious. The Applicants submit that different materials have different characteristics (e.g., different modulus of elasticity) and that the shape of the post is designed in accordance with the properties of the materials used. In addition, the Applicants submit that there is nothing in Reynaud that suggests using fiberglass to make posts.

As such, the Applicants submit that because claims 33 and 55 utilize glass fibers these claims are not obvious in view of Reynaud. In addition, claims 34, 35, 36, 40, and 42-50 (which depends either directly or indirectly from claim 33); and claims 54 and 56-69 (which depends either directly or indirectly from claim 55) are also not obvious

in view of Reynaud. Therefore, the Applicants request reconsideration and withdrawal of the obviousness rejection of the claims.

**B. Claim 39**

The Examiner rejected claim 39 as being unpatentable over Reynaud in view of Al Kasem. The Applicants incorporate the previous arguments regarding Reynaud as arguments against the rejection of claim 39. The addition of Al Kasem does not correct the short-comings of Reynaud. For example, Al Kasem does not disclose utilizing posts having glass fibers. Claim 39 also contains posts having glass fibers (due to its dependency upon claim 33). As such, the Applicants maintain that Reynaud and Al Kasem either individually or in any reasonable combination do not render the Applicants' invention obvious. The Applicants request reconsideration and withdrawal of the obviousness rejection of claim 39.

**C. Claim 51**

The Examiner rejected claim 51 as being unpatentable over Reynaud in view of Kennard. The Applicants incorporate the previous arguments regarding Reynaud as arguments against the rejection of claim 51. The addition of Kennard does not correct the short-comings of Reynaud. For example, Kennard does not disclose utilizing posts having glass fibers. Claim 51 also contains posts having glass fibers (due to its dependency upon claim 33). As such, the Applicants maintain that Reynaud and Kennard either individually or in any reasonable combination do not render the Applicants' invention obvious. The Applicants request reconsideration and withdrawal of the obviousness rejection of claim 51.

**D. Claim 52**

The Examiner rejected claim 52 as being unpatentable over Reynaud in view of Weissman. The Applicants incorporate the previous arguments regarding Reynaud as

arguments against the rejection of claim 52. The addition of Weissman does not correct the short-comings of Reynaud. For example, Weissman does not disclose utilizing posts having glass fibers. Claim 52 also contains posts having glass fibers (due to its dependency upon claim 33. As such, the Applicants maintain that Reynaud and Weissman either individually or in any reasonable combination do not render the Applicants' invention obvious. The Applicants request reconsideration and withdrawal of the obviousness rejection of claim 52.

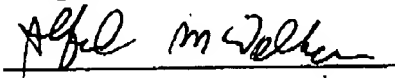
**CONCLUSION**

Thus, Applicant submits that none of the claims presently in the application are indefinite, anticipated, or double-patented under the respective provisions of 35 U.S.C. §§ 112, 102, or 101. Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the issuance of a final action in any of the claims now pending in the application, it is requested that the Examiner telephone the undersigned Alfred M. Walker, at (631) 361-8737 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Dated: November <sup>15</sup>~~13~~, 2004

Respectfully submitted,



Alfred M. Walker

Reg. No. 29,983

Attorney for the Applicants  
225 Old Country Road  
Melville, NY 11747-2712  
631-361-8737

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